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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/080,709	02/25/2002	Katsunari Ohsono	219973US3	8295

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EXAMINER

PALABRICA, RICARDO J

ART UNIT	PAPER NUMBER
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3641

DATE MAILED: 03/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/080,709

Applicant(s)

OHSONO ET AL.

Examiner

Rick Palabrica

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 February 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) 6-12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 13-15 is/are rejected.
- 7) ☒ Claim(s) 2 and 3 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

1. Applicant's Request for Continued Examination in Paper No. 15 and the amendment after final in Paper No. 12, are acknowledged.

2. Applicant traversed the rejection of claims based on Efferding or Wells et al. on the grounds that integration of the circular former plates 7a-j and vessel 2 in Efferding or the inner shell 36 and filler blocks 42, 43, and 44 in Wells et al. "would change the principles of their operation and clearly contradicts the understanding and expectations of these references."

Applicant's arguments have been fully considered but they are not persuasive. Note that the integration cited by the applicant was suggested by the examiner in the previous Office action **in case** the claim language is revised to recite a unitary construction for the barrel main body. Since this specific revision was not made by the applicant, said suggestion does not apply. It appears that a unitary construction for the main body is not critical to the invention because this feature is not recited in the claims.

Applicant also traversed the use of secondary references Hennings, Horning, and Mogard on the grounds that they do not disclose the alleged structure of the barrel main body. Applicant's argument is not persuasive because these references were used to provide teachings on structures that are not part of the main body. Hennings provided the teaching on the plate structure for the basket, and Horning and Mogard provided the teaching for the dummy pipe.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-5 and 13-15 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In the amendment to claims 1, 2, 3 and 15, applicant added the following new limitations that are not disclosed in the original specification: "barrel main body having a cavity cross section complementing the cross section of the basket (see claims 1 and 15)";

The term, "complementing" implies a perfect match or having two things mutually complete each other and together constitute as a whole (see Reference U). Note in Fig. 3 of the disclosure, for example, that the barrel main body cavity does not complement the cross section of the basket because of the six dummy pipes interposed between the cavity and the basket. Note further that these dummy pipes are not part of the basket because: a) they do not serve to contain fuel elements; and b) their purpose, when used, is to securely fix the basket (see page 17, lines 16+, of the specification).

The specification and original claims recite a barrel main body that forms an inner side of a cavity "in a shape aligning with the outer shape of the basket" (e.g., see page 6, lines 14+ and page 8, lines 10+). Thus, the specification recites a broad configuration of a barrel main body, i.e., one whose inner side forms a cavity that is "**aligned**" with the outer shape of the basket. The word "**aligned**" is a broad term that would describe any two surfaces that are disposed near each other such that their horizontal or vertical axes are aligned.

Therefore, the more restrictive limitations in said amended claims represent new subject matter. See also MPEP 2163.5, Part III, and *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976).

4. Claims 1-5 and 13-15 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The reason is as set forth in section 3 above.

5. Claims 1-5 and 13-15 are rejected under 35 U.S.C. 112, second paragraph, as failing to set forth the subject matter which applicant(s) regard as their invention. The reason is as set forth in section 3 above.

Claim Objections

6. Claims 2 and 3 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim.

Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claim 2 recites the limitation, "wherein the inner cavity has a plurality of portions which do not complement the cross section of the basket". On the other hand, Claim 1, from which Claim 2 depends, recites "a cavity cross section complementing the cross section of the basket". Claim 2 is clearly inconsistent with and changes the limitation of claim 1.

Claim 3, which also depends from claim 1, recites the limitation, "wherein the cavity cross section of the inner cavity corresponds with a cross section of an outer shape formed by the plurality of dummy pipes and the basket in contact with each other." Again, claim 3 is an improper dependent clause because it changes the limitation of claim 1.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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7. Claims 1, 2 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Efferding (U.S. 4,800,283).

Efferding discloses a shipping cask for transporting fuel elements, comprising a cylindrical vessel and a basket structure disposed in the interior thereof (see Figs. 1-6).

The basket includes: a) a plurality of plate members capable of absorbing neutrons (15 a-g); b) rectangular plate members having a plurality of cutting sections for mutually engaging the plate members and forming a plurality of cells (see column 4, lines 10+); c) the basket having a cross section having a plurality of stepped corners.

There are circular aluminum plates 7a-j that circumscribe the cell assembly 4 and the inner edges of these plates are stepped and complementary to the shape of the outer cross section of the basket (see column 4, lines 38+). These metallic, aluminum plates inherently absorb gamma rays. The plates form a tight structure with the cylindrical vessel 2 that is made from a composite of stainless steel, lead and a neutron-absorbing plastic (see column 4, lines 1+ and column 6, lines 30+).

Applicant's claim language reads on Efferding's cask as follows: a) "barrel main body" reads on the plurality of the circular plates, and b) "neutron shielding body" reads on the cylindrical vessel 2. Note that applicant's claim language of "barrel main body" does not preclude having a plurality of structures (i.e., non-unitary construction) that together form and function together as a main body.

The claims are replete with statements that are either essentially method limitations or statements of intended or desired use. For example, "for mutually engaging the plurality of rectangular plate members", "which shields γ rays", etc. These

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clauses, as well as other statements of intended use do not serve to patently distinguish the claimed structure over that of the reference, as long as the structure of the cited references is capable of performing the intended use. See MPEP 2111-2115.

See also MPEP 2114 that states:

A claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ2d 1647.

Claims directed to apparatus must be distinguished from the prior art in terms of structure rather than function. In re Danly, 263 F.2d 844, 847, 120 USPQ 528, 531.

[A]pparatus claims cover what a device is, not what a device does." Hewlett-Packard Co. v. Bausch & Lomb Inc., 15 USPQ2d 1525, 1528.

As set forth in MPEP 2115, a recitation in a claim to the material or article worked upon does not serve to limit an apparatus claim.

The apparatus in the cited reference is capable of being used in the same manner and for the intended or desired use as the claimed invention.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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8. Claims 1, 2 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wells et al. (U.S. 4,827,139) in view of either one of Efferding or Hennings (DE 2835392 C2). Wells et al. disclose the applicant's claims except for the plate members with cutting section that make up the basket.

Wells et al. disclose a spent nuclear fuel shipping basket and cask (see Figs. 1-5). Fig. 1 shows a cask (11) containing a spent nuclear basket (13), consisting of a number of cells (41) into which nuclear fuel assemblies (not shown) are inserted for transport. The basket has a cross section having a plurality of stepped corners.

Fig. 3 shows filler blocks 42 forming a cavity having a cross section which complements the cross section of the basket 41. There are also two rings 36 and 34, and the space 38 is filled with lead (see column 4, lines 17+). A neutron shield (37) is arranged in an outer periphery of ring 34.

Applicant's claim language reads on Wells et al. cask as follows: a) "barrel main body" reads on the combination of structures 42, 36, 34 and 38; b) "neutron shielding body" reads on structure 37. Again, note that applicant's claim language of "barrel main body" does not preclude having a plurality of structures (i.e., non-unitary construction) that together form and function as a unit as a barrel main body, such as the combination of structures in a) above.

Wells et al. does not disclose the claimed configuration for the plates that make up the basket. Note from the discussion in section 7 above that Efferding discloses the claimed limitation regarding the plates that comprise the applicant's basket. Hennings teaches a storage frame for spent fuel elements consisting of metal plates containing

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neutron-absorbing material. Fig. 1 in Hennings shows the frame being made from rectangular plates with cutting sections provided on both edges, and said plates are arranged to form a square-shaped cross section. One having ordinary skill in the art would have recognized that either one of Efferding or Henning's plate structure can be used for the basket of Wells et al. because they serve the same function of holding spent nuclear fuel and have the same neutron absorbing properties.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus, as disclosed by Wells et al., by the teaching of either one of Efferding or Hennings in order obtain a cask comprising: 1) a basket having a plurality of rectangular plates with cutting sections for mutually engaging a plurality of plates to form a plurality of cells; 2) a barrel main body which shields gamma rays and has an inner cavity cross section complementing the cross section of the basket; and 3) a neutron shield arranged in the periphery of the said barrel main body, as this is no more than the use of conventional designs/techniques within the nuclear art, and an alternative way of forming the basket structure.

9. Claims 3-5, 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over either one of the Wells-Efferding combination or the Wells-Hennings combination, as applied to claims 1, 2 and 15 above, and further in view of Horning (U.S. 3,036,964) and Mogard (U.S. 4,004,972). Either one of the Wells-Efferding combination or the Wells-Hennings combination disclosed the applicant's claims except for the specifics regarding the dummy pipe.

In addition to the elements of the cask already discussed in section 8 above, the Wells et al. cask also disclose filler blocks (43) of heat absorbing, neutron absorbing material (such as an alloy of aluminum and boron) inserted into the empty spaces between the basket and the wall of the cask (see Abstract, Fig. 3 and column 4, lines 33+). They further disclose that these filler blocks can have different shapes and dimensions, such that when the blocks are assembled in the cask, the basket is held rigidly within the cask (e.g. see claim 1).

Horning teaches the use in a nuclear reactor core of filler members (26) in the form of a hollow aluminum container (e.g. see Figs. 1-3 and column 3, lines 73-75). Horning teaches further that these filler members can be in the form solid aluminum bars. Note that both Horning and Wells et al. refer to the same term, "filler", and both use these fillers for improvement of nuclear characteristics.

Mogard teaches a nuclear fuel element that adds helium gas to the void volume to improve heat transfer in the annular gap (see column 4, lines 60+). Note that both Mogard and Wells et al. are both concerned with improving heat transfer in their devices.

One having ordinary skill in the art would have recognized that a filler material in Wells et al.'s cask can be made of a hollow metal structure, based on the teaching of Horning, and an inert gas such as helium can be introduced into said hollow filler structure to improve its heat transfer characteristics, based on the teaching of Mogard.

As to the specific location of these dummy pipes in the stepped corners of the basket, this is a matter of optimization within prior art conditions or through routine experimentation (see MPEP 2144.05 II.A).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the apparatus, as disclosed by either one of Wells-Efferding combination or the Wells-Hennings combination, by the teachings of Horning and Mogard in order obtain a cask further comprising a dummy pipes of boron-aluminum alloy and containing helium gas, said pipes provided along and in contact with each of the step portions of the basket, to gain the advantages thereof, as this is no more than the use of conventional designs/techniques within the nuclear art, and the substitution of one filler block configuration by another well-known configuration.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. References A-C further illustrate prior art.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rick Palabrica whose telephone number is 703-306-5756. The examiner can normally be reached on 7:00-4:30, Mon-Fri; 1st Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Carone can be reached on 703-306-4198. The fax phone numbers

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for the organization where this application or proceeding is assigned are 703-305-7687 for regular communications and 703-305-7687 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1113.

RJP
March 4, 2003

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SUPERVISOR
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